

REMARKS

In the Office Action of August 12, 2004, the Examiner initially objected to claim 3 as including an informality. Specifically, the Examiner stated that a period was missing from the end of the claim. By the present amendment, claim 3 has been cancelled such that this objection raised by the Examiner has been rendered moot.

In the Office Action, claims 1-5 and 16 were rejected under 35 USC §102(b) as being anticipated by the Vandermeulen U.S. Patent No. 3,847,455. Claims 1 and 6-20 were rejected under 35 USC §102(b) as being anticipated by the Scag U.S. Patent No. 5,117,617.

Reconsideration of the above claim rejections in view of the preceding claim amendments as well as in view of the arguments for allowance presented below is requested.

By the present amendment, independent claim 1 has been amended to more particularly state that the spindle includes a flange that extends radially outward from the end of the spindle and is positioned within the opening defined by the housing. The flange is spaced from the housing such that the spindle can rotate relative to the housing. As shown in the Figures of the application, the lawnmower blade is connectable to the spindle and is supported by the flange formed as part of the spindle.

Claim 1 has also been amended to more particularly state that the seal disposed within the housing between the flange and the bearing is a one-piece ring shaped member that includes a body formed from a rigid material and a lip made from a flexible material that is molded around the body. The seal is disposed within the housing such that the lip directly contacts the spindle to prevent material from passing from the opening to the bearing. These features of the invention are not shown or described, nor rendered obvious, by the cited Vandermeulen '455 reference or the Scag '617 reference.

In the Scag '617 reference, the spindle 12 receives a lower bushing 36. The bushing 36 includes a skirt portion 38 that generally corresponds to the flange required by

amended independent claim 1. In the Scag '617 reference, the skirt portion 38 fills much of the opening surrounding the spindle 12. The lower bushing 36 further includes a reduced diameter neck portion 37 that extends axially from the skirt portion 38. Thus, the Scag '617 reference teaches that two separate components, namely the spindle 12 and bushing 36, are required to perform the same function as the single spindle required by amended independent claim 1. Specifically, the spindle of amended independent claim 1 includes a radially extending flange formed as an integral part of the spindle. Thus, the spindle assembly required by claim 1 eliminates the bushing of the Scag '617 reference.

Further, independent claim 1 has been amended such that the seal disposed within the housing is a one-piece ring shaped member that extends around the spindle and includes a body made from a rigid material and a lip made from a flexible material that is molded around the body. The lip formed as part of the one-piece seal directly contacts the spindle to prevent material from passing from the opening to the bearing.

In the Scag '617 patent, each of the lip seals 44,56 is described as being a three part structure. Specifically, the lip seal includes an annular sealing ring 75 formed from rubber, an annular metallic shell 80 received within a groove 81 formed in the annular sealing ring 75, and a coil spring 79. Clearly, the Scag '617 reference teaches a three-piece lip seal.

Further, the lip seal taught by the Scag '617 reference does not directly contact the spindle. Rather, the contact edges 76,77 of the sealing ring 75 contact the lower bushing 36. As amended, independent claim 1 requires the lip made from a flexible material to directly contact the spindle, rather than an intermediate bushing.

For at least the above reasons, amended independent claim 1 defines over the Scag '617 reference cited by the Examiner and is thus believed to be in condition for allowance.

In the Office Action, claim 1 was also rejected based upon the Vandermeulen '455 reference. In the Vandermeulen '455 reference, the spindle includes a shaft 15 having a radially extending annular flange 35'. The '455 reference teaches the

inclusion of a shield 40 having an outer flange spaced axially from the lower lip 23. The Vandermeulen '455 reference does not teach, however, the creation of a seal around the rotating spindle as required by independent claim 1. Instead, the radial flange 44 of the shield is closely spaced from the lip 23 to provide a clearance 44 small enough such that grass clippings are prevented from entering the bearing area. Clearly, there is no teaching or suggestion of a one-piece ring shaped seal having a lip made from a flexible material that contacts the spindle. Thus, claim 1 is believed to be in condition for allowance.

Claims 4-5 and 8-10 depend directly or indirectly from amended claim 1 and are thus believed to be allowable based upon the above arguments for allowance as well as in view of the subject matter of each claim.

By the present amendment, claim 11 has also been amended to indicate that the seal is a one-piece, generally ring shaped member that includes an outer ring portion, an inner ring portion and a lip made from a flexible material where the lip is molded around both the inner ring portion and the outer ring portion. The lip molded around the inner and outer ring portions contacts the spindle to create a seal with respect to the rotating spindle.

As discussed above in the arguments for allowance of independent claim 1, neither the Scag '617 or the Vandermeulen '455 reference teach a one-piece seal that includes a lip made from a flexible material that is molded around the seal body, including the inner ring portion and the outer ring portion. Instead, the Scag '617 reference teaches a three part lip seal while the Vandermeulen '455 reference does not teach any sealing assembly. For these reasons, amended independent claim 11 is believed to be in condition for allowance.

Claims 12-15 depend directly or indirectly from claim 11 and are believed to be allowable based upon the above arguments for allowance, as well as in view of the subject matter of each claim.

By the present amendment, claim 16 has also been amended to indicate that the spindle assembly includes a one-piece sealing means that includes a rigid support

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means connected to the housing and a flexible contacting means that is molded around the ring support means and positioned for contacting the spindle. The one-piece sealing means of claim 16 is not shown or suggested, nor rendered obvious, by the subject matter of either the Scag '617 reference or the Vandermeulen '455 reference. Specifically, the Scag '617 reference teaches a three part lip seal while the Vandermeulen '455 reference does not teach a seal, but instead utilizes a cover or shield to prevent grass clippings from entering into the opening formed in the spindle. Based upon these clear differences between the subject matter of amended claim 16 and the cited prior art, amended independent claim 16 is believed to be in condition for allowance.


Claims 18-20 depend directly or indirectly from claim 16 and are thus believed to be allowable based upon the above arguments for allowance, as well as in view of the subject matter of each claim.

Conclusion

Based upon the claim amendments and the above arguments for allowance, claims 1, 4-5, 8-16 and 18-20 are believed to be in condition for allowance. The Examiner is invited to contact the applicant's undersigned attorney with any questions or comments, or to otherwise facilitate prosecution of the present application.

Respectfully submitted,

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